

- 16 -

Claims

1. An arrangement for channel estimation in a wireless communication system, the arrangement comprising:

5 correlation channel estimation means for receiving input signals representative of channel information and for producing therefrom correlation channel estimate signals;

correlation peak identification means coupled
10 to the correlation channel estimation means for deriving from the correlation channel estimate signals representative of correlation peaks; and

cross-correlation peak removal means coupled to
the correlation channel estimation means and to the
15 correlation peak identification means for removing cross-correlation peaks from the correlation channel estimate signals to produce improved channel estimate signals.

20 2. The arrangement of claim 1 wherein the correlation peak identification means comprises cross-correlation peak identification means for identifying a cross-correlation peak as having a smaller magnitude than a correlation peak.

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3. The arrangement of claim 1 or 2 wherein the input signals representative of channel information comprise signal portions constructed from a single periodic base code.

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- 17 -

4. The arrangement of claim 3 wherein the signal portions comprise midambles.

5. The arrangement of any preceding claim wherein the wireless communication system is a UMTS system.

6. The arrangement of claim 5 wherein the UMTS system is a UTRA TDD system.

7. The arrangement of claim 6 wherein the input signals comprise random access PRACH bursts.

8. A method for channel estimation in a wireless communication system, the method comprising:

providing correlation channel estimation means receiving input signals representative of channel information and producing therefrom correlation channel estimate signals;

providing correlation peak identification means coupled to the correlation channel estimation means, the correlation peak identification means deriving from the correlation channel estimate signals representative of correlation peaks; and

providing cross-correlation peak removal means coupled to the correlation channel estimation means and to the correlation peak identification means, the cross-correlation peak removal means removing cross-correlation peaks from the correlation channel estimate signals to produce improved channel estimate signals.

- 18 -

9. The method of claim 8 wherein the correlation peak identification means comprises cross-correlation peak identification means identifying a cross-correlation peak as having a smaller magnitude than a correlation peak.

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10. The method of claim 8 or 9 wherein the input signals representative of channel information comprise signal portions constructed from a single periodic base code.

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11. The method of claim 10 wherein the signal portions comprise midambles.

12. The method of any one of claims 8-11 wherein the
15 wireless communication system is a UMTS system.

13. The method of claim 12 wherein the UMTS system is a UTRA TDD system.

20 14. The method of claim 13 wherein the input signals comprise random access PRACH bursts.

15. The method of any one of claims 8-14 wherein the
step of providing cross-correlation peak removal means
25 comprises repeatedly cancelling cross-correlation peaks at locations other than that of an identified peak and identifying the next largest magnitude remaining peak.

16. The method of claim 15 wherein the step of
30 repeatedly cancelling and identifying is performed a predetermined number of times.

- 19 -

17. The method of claim 15 wherein the step of repeatedly cancelling and identifying is performed until an identified peak has a magnitude less than a
5 predetermined value.

18. The method of any one of claims 8-17 further comprising ensuring that no transmission occurs in a timeslot immediately following that in which channel
10 estimation is performed.

19. A method for channel estimation in a wireless communication system, the method comprising:

providing correlation channel estimation means
15 receiving input signals representative of channel information and producing therefrom correlation channel estimate signals; and
ensuring that no transmission occurs in a timeslot immediately following that in which channel
20 estimation is performed.

20. A base station for use in a wireless communication system comprising an arrangement as claimed in any one of claims 1-7.

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21. An integrated circuit comprising the arrangement of any one of claims 1-7.

22. A computer program element comprising computer
30 program means for performing the method of any one of claims 8-19.